Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Previously Presented) An optical switching apparatus, comprising:

a plurality of optical input switches;

a plurality of optical output switches;

a plurality of central optical switches connected between the plurality of input switches and plurality of output switches;

a plurality of test light sources, where each test light source is connected to an optical input switch; ~~and~~

a first plurality of optical detectors connected to the optical output switches; and

a controller connected to each of the plurality of optical input switches, the plurality of optical output switches, the plurality of central optical switches, the plurality of test light sources, and the first plurality of optical detectors, and wherein at least one of the plurality of central optical switches is an active optical switch and at least one of the plurality of central optical switches is a protection optical switch which acts as a back up for the active optical switch, wherein the controller determines if one of the plurality of central optical switches is malfunctioning, by simultaneously using input signals, which are not generated by the test light sources, to test the active optical switch and the test light sources to test the protection optical switch.

2. (Original) The optical switching apparatus, as recited in claim 1, wherein each of the plurality of optical input switches has input connections and output connections, and each of the plurality of optical output switches has input connections and output connections, and each of the

plurality of central optical switches has input connections and output connections, further comprising:

a first plurality of optical fibers connected between the output connections of the input switches and the input connections of the central optical switches;

a second plurality of optical fibers connected between the output connections of the central optical switches and the optical output switches;

a third plurality of optical fibers connected to the input connections of the optical input switches, wherein each test light source of the plurality of test light sources is connected to an optical fiber of the third plurality of optical fibers; and

a fourth plurality of optical fibers connected to the output connections of the optical output switches, wherein each detector of the first plurality of optical detectors is connected to an optical fiber of the fourth plurality of optical fibers.

3. (Original) The optical switching apparatus, as recited in claim 2, further comprising a second plurality of optical detectors, wherein each optical detector of the second plurality of optical detectors is connected to an optical fiber of the third plurality of optical fibers.

4. (Original) The optical switching apparatus, as recited in claim 3, further comprising a third plurality of optical detectors, wherein each optical detector of the third plurality of optical detectors is connected to an optical fiber of the first plurality of optical fibers.

5. (Original) The optical switching apparatus, as recited in claim 2, wherein each of the plurality of optical input switches is connected to at least eight fibers of the third plurality of fibers.

6. (Previously Presented) An optical switching apparatus, comprising:

a plurality of optical input switches;

a plurality of optical output switches;

a plurality of central optical switches connected between the plurality of input switches and plurality of output switches;

a plurality of test light sources, where each test light source is connected to an optical input switch;

a first plurality of optical detectors connected to the optical output switches, wherein each of the plurality of optical input switches has input connections and output connections, and each of the plurality of optical output switches has input connections and output connections, and each of the plurality of central optical switches has input connections and output connections;

a first plurality of optical fibers connected between the output connections of the input switches and the input connections of the central optical switches;

a second plurality of optical fibers connected between the output connections of the central optical switches and the optical output switches;

a third plurality of optical fibers connected to the input connections of the optical input switches, wherein each test light source of the plurality of test light sources is connected to an optical fiber of the third plurality of optical fibers;

a fourth plurality of optical fibers connected to the output connections of the optical output switches, wherein each detector of the first plurality of optical detectors is connected to an optical fiber of the fourth plurality of optical fibers; and

a controller connected to each of the plurality of optical input switches, wherein the controller determines if one of the plurality of central optical switches is malfunctioning by testing a first plurality of optical paths using the test light sources and by simultaneously testing a second plurality of optical paths using input signals, which are not generated by the test light sources.

7. (Canceled)

8. (Previously Presented) The optical switching apparatus, as recited in 1, further comprising an indicator connected to the controller which indicates if a central optical switch is malfunctioning.

9. (Canceled)

10. (Original) The optical switching apparatus, as recited in claim 1, wherein each optical input switch of the plurality of optical input switches is connected to a test light source.

11-19 (Canceled)

20. (Previously Presented) The switching apparatus, as recited in claim 1, wherein the controller causes the entire protection optical switch to replace an entire active optical switch if the controller determines the active optical switch is malfunctioning.

21. (Previously Presented) The switching apparatus, as recited in claim 1, wherein the controller further uses the plurality of test light sources to test the active optical switch, when input lights are not present.

22. (Previously Presented) The switching apparatus, as recited in claim 1, wherein individual paths of the protection optical switch are used to replace individual paths of the active optical switch when the controller determines that individual paths of the active optical switch are malfunctioning.

23. (Previously Presented) The optical switching apparatus, as recited in 6, further comprising an indicator connected to the controller which indicates if a central optical switch is malfunctioning.

24. (Previously Presented) The switching apparatus, as recited in claim 6, wherein the controller causes the entire protection optical switch to replace an entire active optical switch if the controller determines the active optical switch is malfunctioning.

25. (Previously Presented) The switching apparatus, as recited in claim 6, wherein the controller further uses the plurality of test light sources to test the active optical switch, when input lights are not present.

26. (Previously Presented) The switching apparatus, as recited in claim 6, wherein individual paths of the protection optical switch are used to replace individual paths of the active optical switch when the controller determines that individual paths of the active optical switch are malfunctioning.